

# DOINGWHATWORKS



**Audio**

FULL DETAILS AND TRANSCRIPT

## Coherent Curriculum

Douglas County School District, Colorado • May 2008

Topic: National Math Panel: Critical Foundations for Algebra  
Practice: Mathematics Preparation for Algebra

### Highlights

- How and why the district narrowed the list of checkpoints in mathematics
- Why the district developed K-12 Essential Learnings in mathematics, approximately three per grade level
- Rationale for expecting mastery of Essential Learnings
- Example of Essential Learnings related to fractions
- What it means to consider algebra as the generalization of arithmetic

### About the Sites

**Douglas County School District**

**Northridge Elementary School**  
**Highlands Ranch, CO**

### Demographics

77% White

10% Asian

10% Hispanic

2% Black

6% Free- or Reduced-Price Lunch

Douglas County Schools have developed K-12 Essential Learnings to focus on the most important “checkpoints” and ensure that students are mastering key topics and skills. The elementary school demonstrates these features:

- Understanding algebra as the generalization of arithmetic, and
- Using manipulatives and visual representations to teach conceptual understanding of fractions.

## **Mountain Ridge Middle School**

### **Highlands Ranch, CO**

#### **Demographics**

83% White

7% Hispanic

7% Asian

2% Black

1% Native American

3% Free- or Reduced-Price Lunch

Douglas County Schools have developed K-12 Essential Learnings to focus on the most important “checkpoints” and to ensure that students are mastering key topics and skills. Mountain Ridge Middle School illustrates the results with:

- Essential Learnings,
- Understanding algebra as the generalization of arithmetic,
- Use of weekly data review and strategy sharing to build a culture of mathematics,
- Coaching of principal, by math supervisor, to observe the mathematics classroom,
- Separate grades on effort and content knowledge in reports to parents,
- Responsibility placed on students, for reporting to parents, through student-led conferences.

## **Full Transcript**

I am Dr. Larry Linnen. I am the K-12 Mathematics Coordinator for Douglas County Schools.

Douglas County, like most schools in the United States, adopted some standards for mathematics years ago. What Douglas County did about six years ago was they crafted what they called “checkpoints” to go along with these standards. Those are things to kind of look for—indicators as to whether or not kids are making progress on those standards. The list of checkpoints in Douglas County, not unlike a lot of schools in the United States, is really long. The checkpoints just go on and on. So, last year, Douglas County decided that

they needed to do something about that and sort of—not abbreviate the list, but take another look at what are we asking kids to do, what are we expecting. The direction that we took, we labeled the Essential Learnings. We ended up with about three Essential Learnings for each grade level. We have Essential Learnings, they have been adopted, the Board of Education has okayed these Essential Learnings, but I will tell you a little bit about how Douglas County views them.

Essential Learnings are things that we would hope that kids would master in grade 1, they would master some other Essential Learnings in grade 2, so that when they move to the next grade level, they understand those. Teachers don't have to review those ideas. They can move on to grade-level mathematics, because our focus in Douglas County is that all kids are doing grade-level mathematics. I will give you an example of Essential Learnings, because several of the grade levels have Essential Learnings based on fractions. One of the keys to fractions is that kids understand fractions conceptually. So one of the best ways to get at conceptual understandings of fractions is to have kids look at multiple representations of fractions—different ideas, sketches, diagrams, what do fractions look like in the real world. Fractions on a number line is one way to think about it, but what does a fraction actually look like? So a lot of our focus, or at least my focus in the district, is preparing elementary teachers to understand conceptually: What does the mathematics look like, what do the numbers look like, in ways other than just symbolic? If we are going to be successful, all of this needs to be coherent, particularly in terms of getting kids ready for algebra.

In the Colorado Model Content Standards, algebra is defined as the generalization of arithmetic—it's that simple. We need to get teachers so they understand that; we need to get kids so they understand that, that all we are doing is taking this mathematics to a different level.